



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,841	09/25/2003	Maximino Aguilar JR.	AUS920030699US1	8312
40412 7590 10/18/2007 IBM CORPORATION- AUSTIN (JVL) C/O VAN LEEUWEN & VAN LEEUWEN PO BOX 90609 AUSTIN, TX 78709-0609			EXAMINER WAI, ERIC CHARLES	
			ART UNIT 2195	PAPER NUMBER
			MAIL DATE 10/18/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/670,841

Applicant(s)

AGUILAR ET AL.

Examiner

Eric C. Wai

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11,13-21 and 23-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11,13-21 and 23-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/20, 7/16, 10/02/2007.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1, 3-11, 13-21, and 23-30 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-11, 13-21, and 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCrory (US Pat No. 6,513,057).

4. McCrory was disclosed on IDS dated 10/02/2007.

5. Regarding claim 1, McCrory teaches a method for multithreading tasks in a computer environment that includes a plurality of dissimilar processors (col 2 lines 27-30), said method comprising:

scheduling operation of a plurality of first tasks adapted to be executed by a first type of processor (col 2 lines 48-52), the scheduling performed by a first scheduler that maintains a first run queue that includes data corresponding to the first tasks (col 2 lines 48-52);

in response to the scheduling operation of the plurality of first tasks by the first scheduler, inserting the plurality of first tasks in the first run queue (col 7 lines 44-47);

scheduling operation of a plurality of second tasks adapted to be executed by a second type of processor (col 2 lines 48-52), the scheduling performed by a scheduler that maintains a second run queue that includes data corresponding to the second tasks (col 2 lines 48-52);

in response to the scheduling operation of the plurality of second tasks by the second scheduler, inserting the plurality of second tasks in the second run queue (col 7 lines 44-47); and

wherein the first scheduler and the second scheduler are both located on a first processor that is the first type of processor (col 3 lines 1-4, wherein the OS scheduler is a single mode binary code file which can only be executed on one of the processor families).

6. McCrory differs from the claimed invention by teaching symmetrically multi threading as opposed to asymmetrically multithreading. However, McCrory's method will asymmetrically multithread when single mode binary code for two different family of processors needs to be scheduled. McCrory's symmetrically multithreading refers to the scheduling of mixed mode binary code on two families of processors.

7. Regarding claim 3, McCrory does not explicitly teach that the scheduling operation of the plurality of first tasks is asymmetric to the scheduling operation of the plurality of second tasks.

8. It would have been obvious to one of ordinary skill in art at the time of the invention that the scheduling operation is asymmetric since the processor families operate independently of each other.

9. Regarding claim 4, McCrory teaches that a first identifier space corresponds to the first type of processor and wherein a second identifier space corresponds to the second type of processor; and wherein a first task list corresponds to the first type of processor and wherein a second task list corresponds to the second type of processor (col 2 lines 64-67, wherein the OS determines the processor family based on the binary code stream).

10. Regarding claim 5, McCrory teaches that the scheduling operation of the plurality second tasks further comprises:

receiving a new task from the plurality of second tasks (col 7 lines 26-29);

identifying new task attributes corresponding to the new task (col 7 lines 41-43, wherein the priority of a thread is determined);

comparing the new task attributes with one or more scheduled task attributes (col 7 lines 41-43, wherein priority of threads are compared), the

scheduled task attributes corresponding to one or more scheduled tasks that are included in the second run queue (col 7 lines 41-43, wherein threads are scheduled by priority); and

performing the scheduling of the new task based upon the comparing (col 7 lines 41-43, wherein threads are scheduled by priority).

11. Regarding claim 6, McCrory teaches that at least one of the new task attributes are selected from the group consisting of a policy and a priority (col 7 lines 41-43).

12. Regarding claim 7, McCrory teaches informing the second type of processor to load one of the second tasks in response to the scheduling (col 3 lines 10-12, wherein notifications are sent).

13. Regarding claim 8, McCrory teaches that the computer environment includes a plurality of second type of processors (col 2 line 50, family of processors).

14. However, McCrory does not teach wherein the second scheduler maintains a plurality of second run queues, each of the plurality of second run queues corresponding to each of the plurality of second type of processors.

15. It would have been obvious to one of ordinary skill in the art at the time of the invention, to modify McCrory to include a queue for each of the processors. One would be motivated by the desire to schedule each processor individually instead of the scheduling the group as a whole.

16. Regarding claim 9, McCrory does not teach that the scheduling operation of the plurality of second tasks further comprises: receiving a new task from the plurality of

Art Unit: 2195

second tasks analyzing a plurality of workloads that correspond to the plurality of second type of processors; identifying an available second type of processor from the plurality of second type of processors in response to the analyzing; and including the new task in the second run queue from the plurality of second run queues that corresponds to the available second type of processor.

17. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to analyze the load at each processor. One would be motivated by the desire to perform load balancing among all the processors to increase the efficiency of McCrory.

18. Regarding claim 10, McCrory does not teach that the first type of processor is a processing unit and wherein the second type of processor is a synergistic processing unit.

19. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a synergistic processing unit. One would be motivated by the desire to extend the breath of McCrory.

20. Regarding claims 11, and 13-20, they are the system claims of claims 1, and 3-10 above. Therefore, they are rejected for the same reasons as claims 1, and 3-10 above.

Art Unit: 2195

21. Regarding claims 21, and 23-30, they are the computer program product claims of claims 1, and 3-10 above. Therefore, they are rejected for the same reasons as claims 1, and 3-10 above.

Response to Arguments

22. Applicant's arguments with respect to claims 1, 3-11, 13-21, and 23-30 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric C. Wai whose telephone number is 571-270-1012. The examiner can normally be reached on Mon-Thurs, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng - Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EW


MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100